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Seed Enabling Environment Analysis (SEEA)

WHAT is seed enabling environment analysis?

The seed sector consists of different seed systems and value chains, which are strongly influenced by the structures and functioning of the government, legislation, and economy. Seed value chains are often composed of a mixture of stakeholders from public and private sectors, and civil society, as operators and service providers. The way in which these stakeholders interact in the different formal and informal systems, through their operations or in the provision of services, makes the seed sector more subject to its legislative environment than most other product value chains. The involvement of a multitude of stakeholders in the seed systems and value chains also results in challenges for the proper governance of the sector. Seed value chains are economic configurations of stakeholders, and as such the influence of national and international governance, coupled with the economic infrastructure and seed markets, define to a large extent the functioning and development opportunities for this specific sector, which is itself complex, owing to the multitude of realities of systems and chains. The seed enabling environment analysis (SEEA) for the seed sector therefore comprises the programme interventions on seed policies, legislative and regulatory frameworks, governance and economic environment.

Box I: terminology used in the analysis of the enabling environment for the seed sector

Enabling environment: The context that determines the extent to which stakeholders and institutions in the seed sector function and perform

Governance: A complex process involving interactions and decision-making among the stakeholders on a collective subject, such as the seed sector, that lead to the creation, re-enforcement and/or reproduction of social norms and institutions

Legislative framework: The set of laws that provide legal rules and procedures for the conservation and use of plant genetic resources; access to and benefit-sharing over plant genetic resources; release, registration and import of varieties; plant variety protection and farmers' rights; release and monitoring of genetically modified organisms; seed quality standards; registration of seed companies and agro-input dealers; seed quality assurance in production; seed trade and commercialization; and the governing mechanisms to oversee and coordinate the seed sector

Regulative framework: The set of regulations that transform ratified international treaties and conventions into legislation and operations

Economic environment: Mix of regulations, governance and markets, which influence and provide economic incentives for the functioning of the seed sector, with its specific seed systems and seed value chain

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WHY seed enabling environment analysis guided by integrated approach?

It is often sighted that slow uptake of improved varieties by the farmers in developing countries can be solved by commercialization of seed sector. Conventional seed policies and the regulatory frameworks derived therefrom have unilaterally focused on seed sector growth along a fixed pathway, from informal systems to economically viable commercial seed systems, and calls for governments to take the necessary policy measures, i.e. investment and regulation, to guide the transfer of the seed sector to the next development stage. The contemporary lesson shows that it has reaped meager success in developing countries, where the major crops and farming systems still lack quality seed and improved varieties. SEEA is a strategic tool for policy makers and development partners to identify critical policy gaps and challenges along the various seed systems and seed value chain of the seed sector. It guides the simultaneous development of seed programmes and policies that provides for the diversity of demands related to different crops, farming systems and farmers. It provides the basis to design of pluralistic regulatory frameworks with various provisions of enabling environments that create entrepreneurial skills for small-holders farmers seed security, at the same time, promote the development of the commercial seed industry. Process for SEEA is an evidence based, and endorsed through an inclusive multi-stakeholder process, vital inputs are generated for the development of specific intervention strategies in targeted seed systems and seed value chains to promote integrated seed sector development.

HOW to analyse the seed enabling environment: technical guidance for design process?

A national multi-stakeholders team consisting of representatives of e.g. public research, universities, quality assurance agencies, representative associations of private seed companies, agro-input dealers, civil society organizations, and farmers' organization should be identified to contribute to the analysis of the seed enabling environment. The current analysis builds upon the information and should be implemented following technical notes issue no 2 on seed systems analysis (SAA), technical notes issue no 3 on seed value chain analysis (SVCA), and technical notes issue no 4 on seed intervention landscape analysis (SILA), thereby concluding the overall national seed sector assessment (NSAA). The team organizes a series of focus group discussions with various types of seed sector stakeholders to get the in-depth insights on key aspects of national seed enabling environment with sets of key guiding questions as illustrated below:

Step 1. Analysis of seed policies: The first question here is whether a national seed policy and corresponding strategy are in place in the government ministry responsible for coordinating agricultural development? Are there elements of seed policies that are also governed by other ministries? For example, laws that address access to and benefit-sharing over genetic resources are mostly governed by the ministry of the environment; while course curricula relevant to the seed sector are the responsibility of the ministry of (higher) education; and the ministry of industry and trade is normally responsible for intellectual property rights and many business aspects related to seed entrepreneurship. The following key questions concerning national seed policy must be addressed:

- What types of stakeholders are involved in the development of the national seed policy?
- What are the focus and vision of the national seed policy? Does it have an integrated perspective that pays attention to formal, informal, emergency and other seed systems in the sector?
- How does the policy relate to the national strategy for agricultural development?
- How does the policy relate to the ratification of international treaties and agreements such as the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), associated with the World Trade Organization; the International Union for the Protection of New Varieties of Plants (UPOV); the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA); and the Convention on Biological Biodiversity (CBD), which includes the Cartagena Protocol (biosafety) and the Nagoya Protocol (access and benefit-sharing)?
- What is the national position on genetically modified organisms (GMO)?
- Is the country a member of any international organization that observes intellectual property rights for plants, varieties and seed?
- Is the country a member of the International Seed Testing Association (ISTA)?

- What is the national position in relation to the balance between plant breeders' and farmers' rights in plant variety protection (PVP); and, in the event PVP is mandatory owing to WTO membership, how can the national position be balanced, in terms of farmers' rights, as guided by the IT-PGRFA?
- What is the country's interpretation of these international treaties and their translation into national policies and legislation, and how it will impact to seed system (see Table 1)?

Table 1. Impact of different international policy regimes on seed systems

International conventions and treaties	**Farmers' seed production and use**	**Farmers' seed exchange**	**Farmers' seed sale**
UPOV '78	Yes	Yes	No
UPOV '91	Yes?	No	No
Patent	No	No	No
ITPGRFA (e.g. farmers' rights)	Yes	Yes	Yes
CBD (e.g. access and benefit-sharing of genetic resources)	Yes	Yes?	Yes

The existing national seed policy can be analysed in terms of its incorporation of guidelines for following the approach to integrated seed sector development (ISSD):

- Views on pluralism in the sector, such as formal and informal seed systems; public and private service providers; and the complementary roles of public, private and civil society sectors
- Views on the co-existence and integration of farmers' rights and breeders' rights
- Recognition of farmers' knowledge and their genetic resources
- Views on the strengthening of interactions between the formal and informal systems
- Strategies for the development of a pluralistic, market oriented and entrepreneurial seed sector

Step 2. Analysis of seed sector legislative and regulatory frameworks: The seed legislation and regulatory framework defines how enabling environments affect the functioning of the seed value chain i.e. for each of the seed operations, as well as the corresponding service providers. A strict seed law and accompanying regulations can negatively impact integration and interactions within seed systems, as shown in Figure 1.

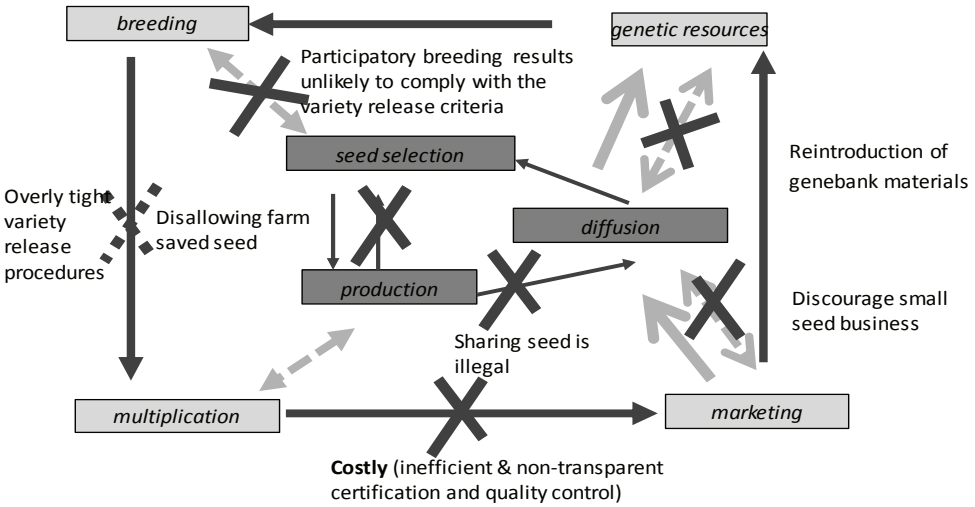

Figure 1: Impact of strict seed law and regulations on the development opportunities of a pluralistic seed sector (source: Louwaars, 2007)

Key guiding topics are:

- Laws and regulations on variety release (fees; requirements on distinctiveness, uniformity and stability - DUS; and requirements on value for cultivation and use - VCU)

- Laws on plant breeders' rights or patent legislation, as well as the corresponding regulations and implementation modalities (fees, scales), and implications on farmer-saved and community-based seed systems
- Laws and regulations on seed certification and strict seed laws limiting opportunities for local seed businesses and national seed companies
- Laws and regulations on seed production and marketing
- Laws, regulations or national guidelines on the distribution of seeds in emergency situations
- Laws and regulation on seed imports, import requirements and quarantine systems
- Legislation resulting from international treaties, such as plant variety protection related to WTO/TRIPS, and access and benefit-sharing related to the ITPGRFA and the CBD
- Legislation on the regional harmonization of seed laws, providing advantages to global or regionally operating companies over national or local seed companies, with regards to release and registration
- Legislation on accreditation in quality assurance for national and international seed companies
- Legislation on accreditation in quality assurance and seed trade for agro-dealers
- Legislation on specific services for seed value chains, other than those already mentioned (variety production and release, certification, registration, packaging, processing, marketing etc.)
- Legislation related to financial services, trade laws and cooperative laws relevant to seed business

Step 3. Analysis of seed sector governance: Legislative and regulatory frameworks define the structure of different platforms and committees. With this topic, it is important to analyse how the consultative and decision-making mechanisms function, and to what degree stakeholders in the sector contribute to such processes. Key elements in the governance of the national seed sector are the following:

- Existence and functioning of a national seed board and its stakeholder composition and mechanisms for interaction, decision-making, innovation and learning
- Functioning of national variety release committees
- Autonomy of the national seed certification services in terms of the public sector
- Existence of mechanisms for handling complaints concerning seed regulatory frameworks
- Level to which the national seed committees and services are decentralized
- Degree of enforcement of the regulations
- Strategies for the enforcement of quality control in seed commercialization (e.g. counterfeit seed)

An analysis of the dynamics and trends, nationally and internationally, can lead to the identification of opportunities and strategies for the improvement of seed sector governance.

Step 4. Analysis of seed sector economic environment: The economic environment determines to a large extent the opportunities for seed value chains. Well-developed value chains are better able to meet the demand for quality seed of a portfolio of varieties, thereby creating opportunities for seed value chain development. The legislation for the development of value chains also influences, indirectly, seed value chain development, and opportunities for seed entrepreneurship. The main issues to be analysed include:

- The level of interference and involvement in the primary economic functions of the public sector, e.g. in seed production and seed marketing
- The existence of level playing fields, i.e. the influence of subsidies, dishonest competition, transparent control of the quality of the produce (seed, varieties)
- Competition: international competition, i.e. seed import regulations and their enforcement; competition with emergency distribution; uncontrolled subsidies provided by seed development programmes, etc.
- The coordination of seed enterprise development between different seed systems (informal and formal)

Step 5. Consolidation and strategic actions formulation: The data gathered addressing seed polices; seed sector legislative and regulatory framework's; seed sector governance and seed sector economic environment synthesized and subsequently shared in the round-table meetings with different seed stakeholder groups. During these round-table meetings, information is consolidated and validated and sets of strategic action plan formulated with the guidance of following two specific questions and associated table:

Guiding question 1: What aspects of the enabling environment are hampering the performance of specific seed systems?

Table 2. Analysis of the impact of the enabling environment on specific seed systems

Enabling environment issue and example	Relevant seed systems*					Impact on seed sector performance	How can we address the issue: what is the strategic action?
	Farmer-saved seed	Community based seed production	Government seed production/ programme	Commercial seed companies	Others		
1							
2							
3							
4							
5							

* more example of seed systems see technical note 2

Guiding question 2: Which aspects of the enabling environment are hampering the performance and functioning of different seed value chains, and/or specific chain operations and services?

Table 3. Analysis of the impact of the enabling environment on specific seed value chain

Enabling environment issue and example	Relevant seed value chains		Impact on seed sector performance	How can we solve the issue: what is the strategic action?
	Functioning of seed operators*	Functioning of seed service providers and their service provisioning**		
1				
2				
3				
4				
5				

* seed opeartors includes staekholders who involved direct management of genetic resources, variety development, early generation seed production, seed multiplication and seed marketing

** service providers and their service provisioning includes extension, variety testing and release, plant variety protection, seed quality assurance, business and financial services etc. (see technical note 3 for details)

WHAT are the examples of seed enabling environments that strengthen the integrated seed sector?

Variety release within the seed law

The seed law can differentiate for formal and informal seed systems in the regulations for variety release. Different pathways can be accommodated at regulatory level for the release of varieties of different crops and seed systems. For some traditional food crops, the local varieties (including modern varieties released many years ago) are often the most available option for smallholder farmers. Owing to their dynamic nature, local varieties do not meet the requirements for release, which has implications on regulating the release of local varieties when introducing flexibility when testing for distinctiveness, uniformity and stability (DUS). In India, the Plant Variety Protection and Farmers' Rights Act (PVPFRA) of 2001 has a legal provision to relax criteria for 'uniformity' in the registration of farmers' varieties. The national variety list includes varieties that are locally adapted to different agro-ecologies, possibly not

meeting the registration criteria on value for cultivation and use (VCU). Local varieties can also be registered and maintained as such, without meeting the DUS and VCU criteria. In Nepal, the amended Seed Act allows participatory data for variety release, which has contributed substantially to the release of varieties developed through participatory plant breeding programmes. This is also a common situation in most countries in eastern and southern Africa.

Balancing breeders' and farmers' rights

Key enabling issues within PVP are to identify what level of exclusive rights can be granted to a breeder of a particular variety, and whether breeder's exemption (the right to use the variety in breeding) or farmer's privilege (right to multiply, exchange and sell farm-saved seed) apply. ISSD recognizes the role of different seed systems and stakeholders' contributions along the seed value chain; therefore, it promotes differentiated rights and flexibility within PVP systems. For example, for the commercial seed sector (e.g. exotic flowers, estate crops, hybrid varieties), the full extent of PVP can be exercised, while at the same time allowing farmers to re-use seed for food crops that the commercial sector would never, or are less than likely to target, owing to the low profit margins. Application of PVP also varies for open-pollinated, self-pollinated and vegetatively propagated crops. India's PPVFR Act integrates farmers' rights and breeders' rights into a single law. Ethiopia is currently adapting its breeders' rights law to concentrate breeder' rights on the commercial sector, while directing farmers' rights to focus on smallholders farmers, thereby maintaining an emphasis on food security, and making the law compatible to the provisions for farmers' rights in the ITPGRFA.

Seed law: early generation seed

Insufficient access to an adequate quantity of early generation seed is a common bottleneck in seed sectors in many developing countries. In many cases, the production of breeder and basic seed continues to be, or is considered to be, the domain of public organizations, as stated in the seed law. Liberalization in the seed sector led to the involvement of the private sector; however, only limited success has been made with this development. In Nepal, early generation seed production has been licensed to many private seed companies and community-based seed production programmes supported by NGOs and donors, although technical capacities are still limited. In Ghana, initial steps are being made to create a system that facilitates the accreditation of private companies in the production of early generation seed of varieties released by public breeding programmes.

Seed law: seed quality assurance

Normally, seed certification services are based within the public sector. Such services can have some financial autonomy, so that they may be run as public businesses, sustained through fees for services, allowing also for diversification in fees for different crops and seed systems, and types of services rendered. Legislation can allow for outsourcing such services to private service providers, or even to the producers themselves (companies, cooperatives). Specific strategies are required to prevent the production and sale of counterfeit seed and the operation of fake and/or dishonest seed companies, in order to protect the private seed market at seed company level, as well as at farmer production level.

Seed law: quality declared seed and truthfully labelled seed

The requirement for compulsory seed certification is one of the discouraging factors that hamper the early stages of local seed business development, and the professionalization of community-based and other informal seed systems. Alternatively, the quality declared seed (QDS) system and truthfully labelled (TL) seed are feasible options that are less stringent and more easily manageable for these types of businesses. QDS has been used by community-based seed production programmes, supported by NGOs or donors, for food security crops in Malawi, Zambia, Mozambique and local seed business in Ethiopia. South Asian countries, such as Nepal, Bangladesh and India, follow voluntary seed certification mechanisms, which means that seed producers need to declare the quality of seed. In Nepal, the government-supported district seed self-sufficiency programme (DISPRO), uses TL seed. The community-based seed production system is becoming profitable due to the TL seed provision as an enabling condition.

Seed law: seed relief

Relief programmes make use of seed distribution programmes through mechanisms such as vouchers and seed fairs; they have different options for sourcing the seed. Such programmes can consider using locally sourced seed rather than imported seeds. The seed distribution can be subsidized in various ways e.g. reduced prices for farmers are active support for agro-dealers are even support for the production of seeds by local farmer groups. In Mozambique,

the seed relief programme supported by NGOs is now using QDS seed to ensure the quality. The World Food Programme in several countries, including South Sudan, aims to purchase locally produce seed for relief with emerging entrepreneurs and seed producer groups, in this way, it supports while acting in relief, the development of a sector.

Integration of formal and informal seed systems

The interaction between formal and informal seed systems can be actively stimulated by integrating various participatory and market oriented strategies along seed value chains. Community biodiversity management (CBM) is being increasingly recognized as a methodology to strengthen farmer-saved, community-based and other informal seed systems, and contribute to the empowerment of farmers and farming communities by further professionalizing their activities in the seed systems. Various CBM practices are effective for promoting ISSD, such as participatory plant breeding, participatory varietal selection, community seed banks, seed fairs, and value addition and the marketing of local products. CBM promotes entrepreneurial farmer-saved and other informal seed systems, and forges partnership between farmers and extension and research programmes. In India, Ethiopia, Nepal, Zimbabwe, and in many other countries, CBM is becoming a strategy for *in situ* conservation of plant genetic resources, ensuring access to resources essential for the food and nutritional security of smallholder farmers, securing food sovereignty, and contributing to the implementation of farmers' rights and benefit-sharing mechanisms.

Trade laws: integrating financial institutions in the seed value chain

Trade laws and rules such as contract law; regional and bilateral trade agreements; seed pricing mechanisms; premiums on grain pricing; profit-sharing; access to credit and finance; tariffs; and import and export quota provisions, influence cash crops or export oriented seed value chains of integrated seed sectors. Access to financial resources and credit is a significant bottleneck for those who operate successful small and medium sized seed businesses. In Nepal, an IFAD-supported seed programme is currently working together with Small Farmer Agro-Cooperative Limited units and non-cooperative microfinance institutions to provide financial services through competitive grant schemes for smallholder seed producers, the private sector, and agro-input dealers for cereal and vegetable seed production.

WHAT lessons can be learned?

The development of the seed sector follows diverse pathways as a result of the impact of various enabling environments and of the opportunities provided by seed policies, strategies and development priorities. The challenge for policy-makers and seed stakeholders is to create policies and programmes that support each of these various seed systems and seed value chains where they are most effective. Informal seed systems provide an important component of seed security, vital for diversity, and affording space for the further evolution of plant genetic resources.

Limiting farmer seed systems through regulatory measures may create an incentive for the private sector for certain crops. Where this cannot be achieved, governments may need to make targeted investments in the seed sector. Such public investments could be directed towards research and to the promotion of seed quality, or they could entail providing more direct support to seed producers, notably to small seed companies that operate at local or regional level. A careful balance of incentives and regulations is required to safeguard an ever-changing optimal mix of private, civil and public roles. Such strategies could lead to a locally vibrant, competitive and pluralistic integrated seed sector.

Reading materials

- De Boef, W.S., Subedi, A., Peroni, N., Thijssen, M. and O'Keeffe, E. (2013). Community biodiversity management: promoting resilience and the conservation of plant genetic resources. Routledge, Abingdon.

- Huft, M., (2011). Investigating policy processes: the governance analytical framework (GAF). [in] U. Wiesmann and H. Hurni (eds). Research for sustainable development: foundations, experiences, and perspectives. Graduate Institute of International and Development Studies (HEI), Geneva, pp. 403-424.

- Louwaars, N.P., De Boef, W.S. and Edeme, J. (2013). Integrated seed sector development in Africa: a basis for seed policy and law. Journal of Crop Improvement 27: 186-214.

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Technical note

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Annex 1: Main steps and guiding questions for seed enabling enviornment (SEEA)

Main steps and actions	Issues and questions to be addressed
Step 1 Analysis of seed policies	Make a summary matrix with following guiding questions (in column) and information (in row): – Does a formal seed policy exist? – What types of stakeholders are involved in the development of the national seed policy? – What are the focus and vision of the national seed policy? Does it have an integrated perspective that pays attention to formal, informal, emergency and other seed systems in the sector? – How does the policy relate to the national strategy for agricultural development? – How does the policy relate to the ratification of international treaties and agreements such as the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), associated with the World Trade Organization; the International Union for the Protection of New Varieties of Plants (UPOV); the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA); and the Convention on Biological Biodiversity (CBD), which includes the Cartagena Protocol (biosafety) and the Nagoya Protocol (access and benefit-sharing)? – What is the national position on genetically modified organisms (GMO)? – Is the country a member of any international organization that observes intellectual property rights for plants, varieties and seed? – Is the country a member of the International Seed Testing Association (ISTA)? – What is the national position in relation to the balance between plant breeders' and farmers' rights in plant variety protection (PVP); and, in the event PVP is mandatory owing to WTO membership, how can the national position be balanced, in terms of farmers' rights, as guided by the IT-PGRFA? – What is the country's interpretation of these international treaties and their translation into national policies and legislation, and how it will impact to seed system?
Step 2.1 Analysis of seed sector legislative and regulatory frameworks (seed laws and regulations)	Make a summary matrix with following guiding questions (in column) and information (in row): – Are seed laws, intellectual property rights and biodiversity laws relevant to seed, in place? – What mechanisms and regulatory framework are in place for seed quality assurance - only certification, or is there also room for informal seed, quality declared and accreditation? How are regulations implemented? Is there any control over implementation? Is there a clear system of penalties; if so, is the judiciary system aware of and applying the system? To what degree is the system self-financed, or is it subsidized? – What mechanisms and regulatory framework are in place for variety release? Who is responsible for decision-making and what does the process involve? Is release conducted at a national level, or has it been decentralized to provinces or agro-ecologies? If variety release has been decentralized, in what way does it provide room for farmer and participatory plant breeding? How is regional harmonization achieved? To what extent are stakeholders involved in the decision-making? How are regulations implemented? To what degree is variety release self-financed, or subsidized? – Does a national oversight committee (seed board) exist; and if so, what regulations are in place for its coordination? What scope does the committee have for decision-making, in terms of flexibility and adaptation of regulations within various mechanisms and regulatory frameworks, to meet the changing realities and demands of the sector? – How do the various mechanisms and regulations approach farmer-saved, community-based and other types of informal seed systems? – Is there scope for pluralism within the seed law and its mechanisms and regulatory frameworks, with regards to crops and seed systems?
Step 2.2 Analysis of seed sector legislative and regulatory frameworks (Intellectual property rights)	Make a summary matrix with following guiding questions (in column) and information (in row): – Are there any mechanisms for plant variety protection (PVP) in place; and if so what kind? – What kind of impact does PVP have on breeders, seed companies and farmers? To what degree do breeders and seed companies apply for protection? – What are the implementing regulations and who is responsible for decision-making? Is there any control over the application of such regulations? – How is the farmer's privilege and breeder's exemption addressed in the PVP? – What is the relationship between the PVP system and UPOV? – Is the PVP system self-financing or subsidized? – What effect does the PVP system have on functioning of the value chain, and on seed systems and stakeholders? – Can crop genetic resources and their reproductive materials be patented? – Is there space for farmer and participatory plant breeding in the PVP system? – How are informal seed systems approached? – Is there room for pluralism within the PVP system and its mechanisms and regulatory frameworks, with regards to crops and seed systems?

Step 3 Analysis of seed sector governance	Make a summary matrix with following guiding questions (in column) and information (in row): – What are the policies towards seed sector governance? – What mechanisms are in place, and are being implemented and backed by the judiciary system, to deal with counterfeit seed; ensure appropriate seed quality standards are used along the value chain; safeguard quality control within the seed quality assurance system and battle corruption? – What mechanism is in place and being implemented to battle the smuggling of seed of non-registered varieties? – How are local by-laws being used to enforce seed legislation? – What lessons can be learned?
Step 4 Analysis of seed sector economic environment	Make a summary matrix with following guiding questions (in column) and information (in row): – What are the responsibilities of the public sector in the primary functions of the chain? How are these responsibilities financed? – How are subsidies used; and how do they contribute to or affect the professionalization of the different seed systems? – Is there room for competition between the various stakeholders of the seed value chains at the level of operation and service provision? What can be considered a level playing field? – Who coordinates entrepreneurship within the seed sector? – What lessons may be learned?
Step 5 Consolidation and strategic actions formulation	Make a summary matrix with following guiding questions, analyze its impact and formulation action plan: – What aspects of the enabling environment (policies, laws, regulations, governance, economic environment) are hampering the performance of specific seed systems (farmer saved, community based seed production, government seed programme, commercial seed companies etc) ? – Which aspects of the enabling environment are hampering the performance and functioning of different seed value chains, and/or specific chain operations and services? – How above key issues impacting on seed sector performance? How can we solve the key issues? What are the strategic actions?